

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A multifunctional material characterized by having at least a surface layer comprising a carbon-doped titanium oxide layer, having the carbon doped in a state of Ti-C bonds, being excellent in durability, and functioning as a visible light responding photocatalyst.
2. (original): The multifunctional material according to claim 1, characterized in that the carbon-doped titanium oxide layer contains 0.3 to 15 at% of carbon.
3. (currently amended): The multifunctional material according to claim 1 ~~or 2~~, characterized in that Vickers hardness of the carbon-doped titanium oxide layer is 300 or higher.
4. (original): The multifunctional material according to claim 3, characterized in that the Vickers hardness of the carbon-doped titanium oxide layer is 1,000 or higher.
5. (currently amended): The multifunctional material according to ~~any one of claims 1 to 4~~ claim 1, characterized in that the multifunctional material is composed of the carbon-doped

titanium oxide layer as the surface layer, and a core material, and the core material is titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide.

6. (currently amended): The multifunctional material according to ~~any one of claims 1 to 4~~ claim 1, characterized in that the multifunctional material is composed of the carbon-doped titanium oxide layer as the surface layer, an intermediate layer, and a core material, the intermediate layer is titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide, and the core material is composed of a material other than titanium, a titanium alloy, and titanium oxide.

7. (currently amended): The multifunctional material according to ~~claim 1, 2, 5 or 6~~ claim 1, characterized in that the multifunctional material is powdery.

8. (currently amended): The multifunctional material according to ~~any one of claims 1 to 7~~ claim 1, characterized in that the carbon-doped titanium oxide layer as the surface layer is bound via the Ti-C bonds to titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide as a layer below the surface layer.

9. (currently amended): The multifunctional material according to ~~any one of claims 1 to 8~~ claim 1, characterized in that the carbon-doped titanium oxide layer contains a titanium alloy component.

10. (currently amended): The multifunctional material according to ~~any one of claims 1 to 9~~ claim 1, characterized in that the titanium alloy is Ti-6Al-4V, Ti-6Al-6V-2Sn, Ti-6Al-2Sn-4Zr-6Mo, Ti-10V-2Fe-3Al, Ti-7Al-4Mo, Ti-5Al-2.5Sn, Ti-6Al-5Zr-0.5Mo-0.2Si, Ti-5.5Al-3.5Sn-3Zr-0.3Mo-1Nb-0.3Si, Ti-8Al-1Mo-1V, Ti-6Al-2Sn-4Zr-2Mo, Ti-5Al-2Sn-2Zr-4Mo-4Cr, Ti-11.5Mo-6Zr-4.5Sn, Ti-15V-3Cr-3Al-3Sn, Ti-15Mo-5Zr-3Al, Ti-15Mo-5Zr, or Ti-13V-11Cr-3Al.

11. (original): A visible light responding photocatalyst characterized by having at least a surface layer comprising a carbon-doped titanium oxide layer, and having the carbon doped in a state of Ti-C bonds.

12. (new): The multifunctional material according to claim 2, characterized in that the Vickers hardness of the carbon-doped titanium oxide layer is 1,000 or higher.

13. (new): The multifunctional material according to claim 12, characterized in that the multifunctional material is composed of the carbon-doped titanium oxide layer as the surface layer, and a core material, and the core material is titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide.

14. (new): The multifunctional material according to claim 12, characterized in that the multifunctional material is composed of the carbon-doped titanium oxide layer as the surface

layer, an intermediate layer, and a core material, the intermediate layer is titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide, and the core material is composed of a material other than titanium, a titanium alloy, and titanium oxide.

15. (new): The multifunctional material according to claim 13, characterized in that the multifunctional material is composed of the carbon-doped titanium oxide layer as the surface layer, an intermediate layer, and a core material, the intermediate layer is titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide, and the core material is composed of a material other than titanium, a titanium alloy, and titanium oxide.

16. (new): The multifunctional material according to claim 2, characterized in that the multifunctional material is powdery.

17. (new): The multifunctional material according to claim 12, characterized in that the carbon-doped titanium oxide layer as the surface layer is bound via the Ti-C bonds to titanium, a titanium alloy, a titanium alloy oxide, or titanium oxide as a layer below the surface layer.

~~18. (new): The multifunctional material according to claim 12, characterized in that the carbon-~~
doped titanium oxide layer contains a titanium alloy component.

19. (new): The multifunctional material according to claim 12, characterized in that the titanium alloy is Ti-6Al-4V, Ti-6Al-6V-2Sn, Ti-6Al-2Sn-4Zr-6Mo, Ti-10V-2Fe-3Al, Ti-7Al-4Mo, Ti-5Al-2.5Sn, Ti-6Al-5Zr-0.5Mo-0.2Si, Ti-5.5Al-3.5Sn-3Zr-0.3Mo-1Nb-0.3Si, Ti-8Al-1Mo-1V, Ti-6Al-2Sn-4Zr-2Mo, Ti-5Al-2Sn-2Zr-4Mo-4Cr, Ti-11.5Mo-6Zr-4.5Sn, Ti-15V-3Cr-3Al-3Sn, Ti-15Mo-5Zr-3Al, Ti-15Mo-5Zr, or Ti-13V-11Cr-3Al.

20. (new): The multifunctional material according to claim 17, characterized in that the titanium alloy is Ti-6Al-4V, Ti-6Al-6V-2Sn, Ti-6Al-2Sn-4Zr-6Mo, Ti-10V-2Fe-3Al, Ti-7Al-4Mo, Ti-5Al-2.5Sn, Ti-6Al-5Zr-0.5Mo-0.2Si, Ti-5.5Al-3.5Sn-3Zr-0.3Mo-1Nb-0.3Si, Ti-8Al-1Mo-1V, Ti-6Al-2Sn-4Zr-2Mo, Ti-5Al-2Sn-2Zr-4Mo-4Cr, Ti-11.5Mo-6Zr-4.5Sn, Ti-15V-3Cr-3Al-3Sn, Ti-15Mo-5Zr-3Al, Ti-15Mo-5Zr, or Ti-13V-11Cr-3Al.